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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,857	10/24/2001	Karl-Heinz Pflaum	112740-331	3263

29177 7590 12/15/2004

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EXAMINER	
JAMAL, ALEXANDER	
ART UNIT	PAPER NUMBER
2643	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/980,857	PFLAUM, KARL-HEINZ	
	Examiner	Art Unit	
	Alexander Jamal	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,10,11,12* is/are rejected.

7)☒ Claim(s) *5-9 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5-27-2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: Specification should be arranged as specified below.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino

acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

2. **Claims 5,6,7,8,9,13**, objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 112

3. **Claims 1,10** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per **claims 1,10,** the term "a test signal level that is **considerably** lower than the useful transmission signal level" in claims 1,10 is a relative term which renders the claim indefinite. The term "useful transmission signal level" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-4,10,11** rejected under 35 U.S.C. 103(a) as being unpatentable over Reesor (5471528), and further in view of Jarboe et al (6185280).

As per **claim 1,** Reesor discloses a speakerphone comprising a transmit path and receive path attenuators 8,9 coupled to attenuation controller 13 (Fig. 1). The system further comprises hybrid 1. However, Reesor does not disclose a test signal generator to send a test signal (with a level lower than the voice transmission levels) on the transmission path, and a signal accumulator and evaluation device to determine a characteristic of the line hybrid by means of a correlation analysis.

Jarboe teaches that in interfaces between 2-wire and 4-wire lines, the echo transfer function (characteristic of a line hybrid) can be determined by transmitting white noise, and performing a correlation analysis (via the use of an accumulator and evaluation device) (Col 2 lines 9-30). The white noise is inherently lower than the speech signals on the line for the reason that the noise does not interfere with the voice communication. The determined transfer function is used to set the impedance of the codec (examiner reads the CODEC to the speakerphone hybrid interface of Reesor, and reads setting the impedance of the CODEC to attenuating the transmit and receive paths of Reesor Fig. 1) (Col 2 lines 30-40). It would have been obvious to one of ordinary skill in the art at the time of this application to implement Jarboe's dynamic training system into the speakerphone of Reesor for the purpose of reducing echoes at the line hybrid.

As per **claim 10,** claim rejected for same reasons as the claim 1 rejection. The system would perform the method of claim 10.

As per **claims 2,11,** both Jarboe and Reesor disclose digital signal processing systems that operate in a telephone environment (in real time). As such, the test signal generator and accumulator must inherently operate synchronous and cyclically for the purpose of allowing the digital system to function in real time. A buffer memory is inherent to the system for the purpose of storing the samples to be processed. An A/D converter for the test signal is inherent to the system for the purpose of allowing the test signal to be digitally processed.

As per **claim 3,** a white noise signal is a maximum length sequence.

As per **claim 4,** the test signal generator inherently comprises a level setting attenuation element for the purpose of setting the output level of the noise.

6. **Claim 12** rejected under 35 U.S.C. 103(a) as being unpatentable over Reesor (5471528) and Jarboe et al (6185280) as applied to claim 11, and further in view Kitai et al. (Discrete Fourier Transform via Walsh Transform).

As per **claim 12,** Reesor and Jarboe disclose applicant's claim 11, but they do not specify using a fast-hadmard transformation followed by a fast-fourier transformation in the evaluation of the test signal echo.

Kitai discloses (page 288, Col 1) that a Walsh (Hadamard)-Fourier transform can be used to digitally analyze signal spectrums. It would have been obvious to one of ordinary skill in the art at the time of this application that the digital signal analysis could be performed with a well known algorithm for the purpose of performing efficient spectral analysis in the system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 703-305-3433. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 703-305-4708. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9315 for After Final communications.

AJ
December 2, 2004

CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600